Device Development

PRICE $5.00

POWER SUPPLY

INSTRUCTION MANUAL

kepco inc.®

131-38 SANFORD AVENUE • FLUSHING 52, N. Y.
Area Code 212 IN 1-7000 • TWX # NY 4-5196

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KEPCO, INC
VOLTAGE REGULATED POWER SUPPLIES MODEL PR80-2.5, (-2.5M)

A-1 ELECTRICAL AND PHYSICAL SPECIFICATIONS

....DC OUTPUT: 0-80 volts, at 0-2.5 amperes.

Output voltage continuously adjustable through two overlapping ranges: 0 to approximately 40 volts (Low); and approximately 40 volts to 80 volts (High). A residual voltage of not more than 80 mv (approximately 0.1% of the maximum output voltage) exists at the output when the control is set to zero, at no load.

....AC INPUT: 115 volts, ±10 v; 60 cps, ±5%; 3 amperes.

Changes in line frequency within stated frequency tolerances produce approximately equal and linear % changes in output voltage.

....LINE REGULATION: ± 1% for ± 10 volt change in AC line voltage; at maximum rated output voltage and current.

....LOAD REGULATION: Specified at maximum rated output voltage, with the load connected to the rear output terminals:

Less than 2% for a change in load current between full-load and half-load.

Less than 4% for a change in load current between full-load and quarter-load.

....RIPPLE: Less than 1.5% (rms) at maximum rated output voltage and current.

....AMBIENT OPERATING TEMPERATURE: -20 C to +55 C.

....STORAGE TEMPERATURE: -40 C to +85 C.

....DIMENSIONS: Height 3-1/2"; Width 19"; Depth 13-7/8" behind panel.

....COLOR: Kepco Standard Gray Hammertone.

....WEIGHT: 45 pounds.

....MOUNTING: Standard rack, or bench.

....METERS: (On Models with suffix "M" on Model number.)
Voltmeter 0-80 volts DC, 2-1/2".
Ammeter 0-2.5 amperes DC, 2-1/2".

PR 310-0.6 (Typical of all 3-1/2" high PR Models)

A-2 TERMINALS AND CONTROLS -

- (On Front Panel):

....POWER: Three position toggle switch "Low-Off-High" turns the Supply On and selects the DC output voltage range when set to either "Low" or "High" position. Pilot Light and Input Fuse.

....VOLTAGE CONTROL: Adjustable control for setting the output voltage within either range selected.

....DC: Overload breaker, Depress To Reset; and three 5-way output binding posts marked (-), (GND), and (+).

- (On Rear of Supply):

....DC: Additional 5-way binding posts for DC output.

....INPUT: Three-wire safety ground line cord.

A-3 GENERAL OPERATING INSTRUCTIONS

This KEPCO Regulated Power Supply consists of a regulated, adjustable-voltage AC power source, supplied by a KEPCO "Flux-O-Tran" constant voltage transformer. The AC source is followed by a full-wave semiconductor rectifier and capacitive filter, of characteristically low internal impedance. The Supply is designed to furnish DC power, at voltage which can be set to any value over a continuously adjustable range; and to maintain that voltage constant within regulation specification as the line voltage and load change.

....INSTALLATION

The Power Supply is shipped without any internal packing material and may be put into operation immediately. It is equipped with carrying handles on the front panel, and is completely encased for bench use. It is also designed so that it may be installed directly on a standard 19-inch rack. Air is circulated through the side panel openings by the internal fan unit.

The ground pin (green wire) of the three-wire line cord is connected internally to the chassis for grounding purposes. When the two-prong receptacle adaptor supplied with the unit is used, the green pigtail lead must be connected to a suitable ground connection in order to ground the chassis.

....DC OUTPUT

The load regulation has been specified for operation with the load connected to the rear output terminals. When the load is connected to the front panel terminals, the load regulation will include any voltage drop in the internal bus connected between the front and rear binding posts.

The DC output is isolated from the chassis, and from the AC power line. Either Positive or Negative output terminal may be grounded. The Ground terminal on the back of the unit is equipped with a jumper link for this purpose. (Be sure to check the position of this link at the rear, before attempting to ground one of the front-panel output terminals).

The design of this Power Supply includes a very high value of capacitance across the output. Due to the charge developed across this capacitor, the voltage across the output terminals will sometimes fall at a slower rate when the output voltage is turned down, or off, depending on the value of internal bleeder resistance and the value of any external load still applied.

....SERIES, PARALLEL OPERATION

The output of two or more PR Models may be connected in series, up to a maximum condition of potential between chassis and either output terminal not to exceed 400 volts.

The output of two or more PR Models may be connected in parallel for higher current requirements. It is necessary to carefully adjust the voltage control of each Supply for equal current from each unit.

....OVERLOAD PROTECTION

The KEPCO "Flux-O-Tran" transformer has an inherent current limiting characteristic which permits operation into an output overload of short duration. However, the circuit breaker will release and interrupt the output current in the event of a sustained overload, primarily to protect the voltage control.

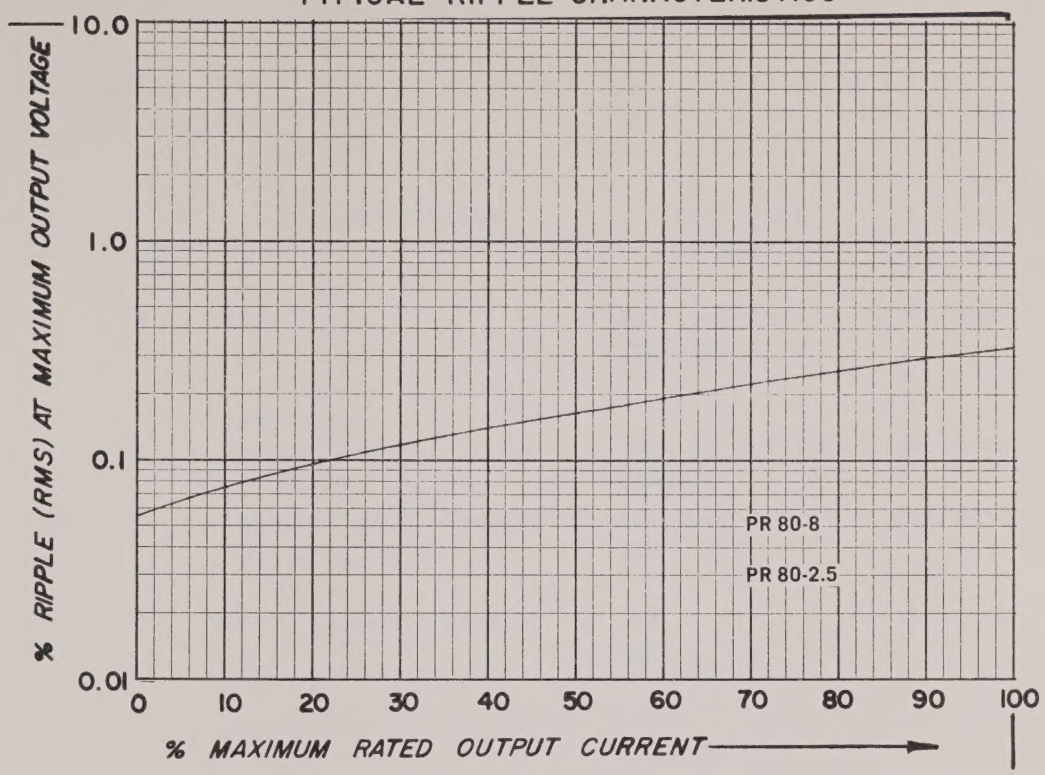
....MAINTENANCE

Conservatively rated components assure a long trouble free operating life. Under normal operating conditions no major maintenance of any kind should be required. The fan motor may be lubricated lightly at about six-month intervals, and an occasional careful brushing or dusting of the interior to remove any accumulations of dust is suggested.

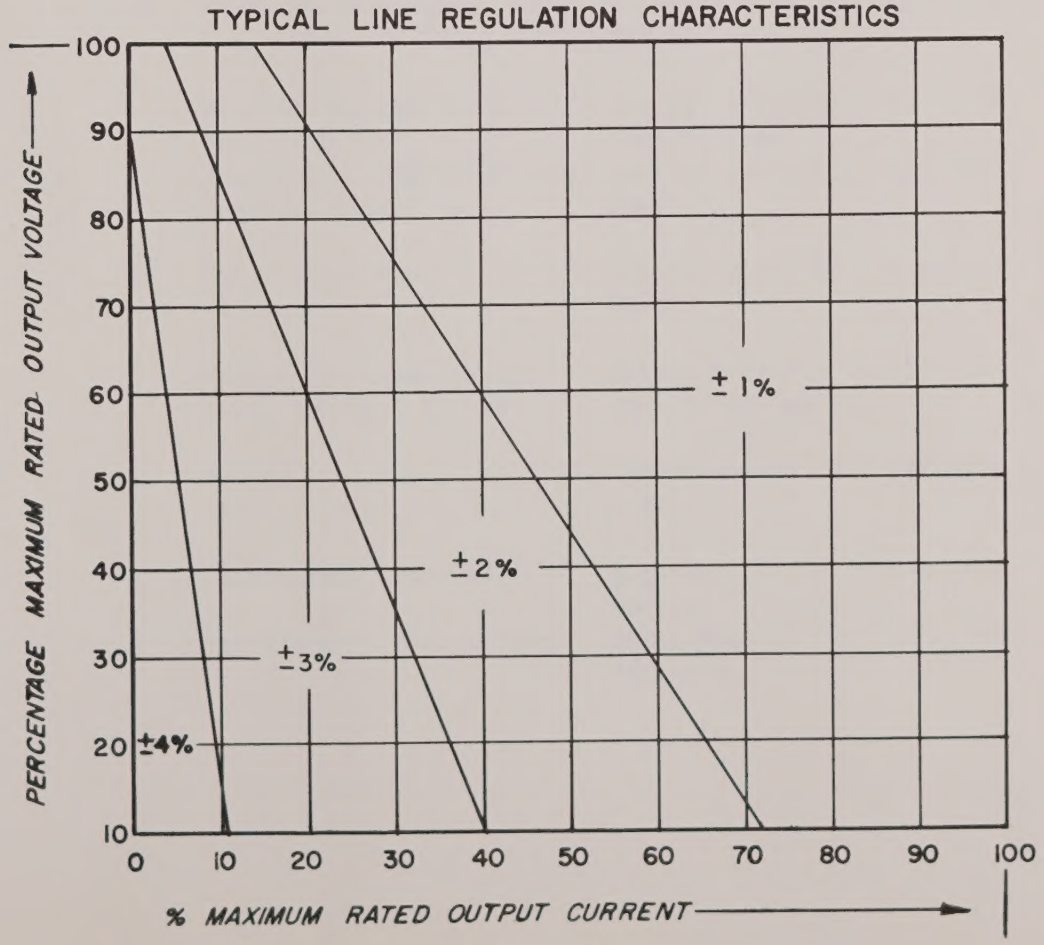
....FACTORY SERVICE

If it becomes necessary or desirable to return this equipment to KEPCO for repair, it should not be shipped to the factory without prior authorization and shipping instructions. The inclusion of detailed information with the unit, or in correspondence prior to its return, will greatly expedite the completion of repair work and return of the unit to the sender. In any correspondence to the factory about this Power Supply, the Model and Serial number should always be included.

TYPICAL RIPPLE CHARACTERISTICS



TYPICAL LINE REGULATION CHARACTERISTICS



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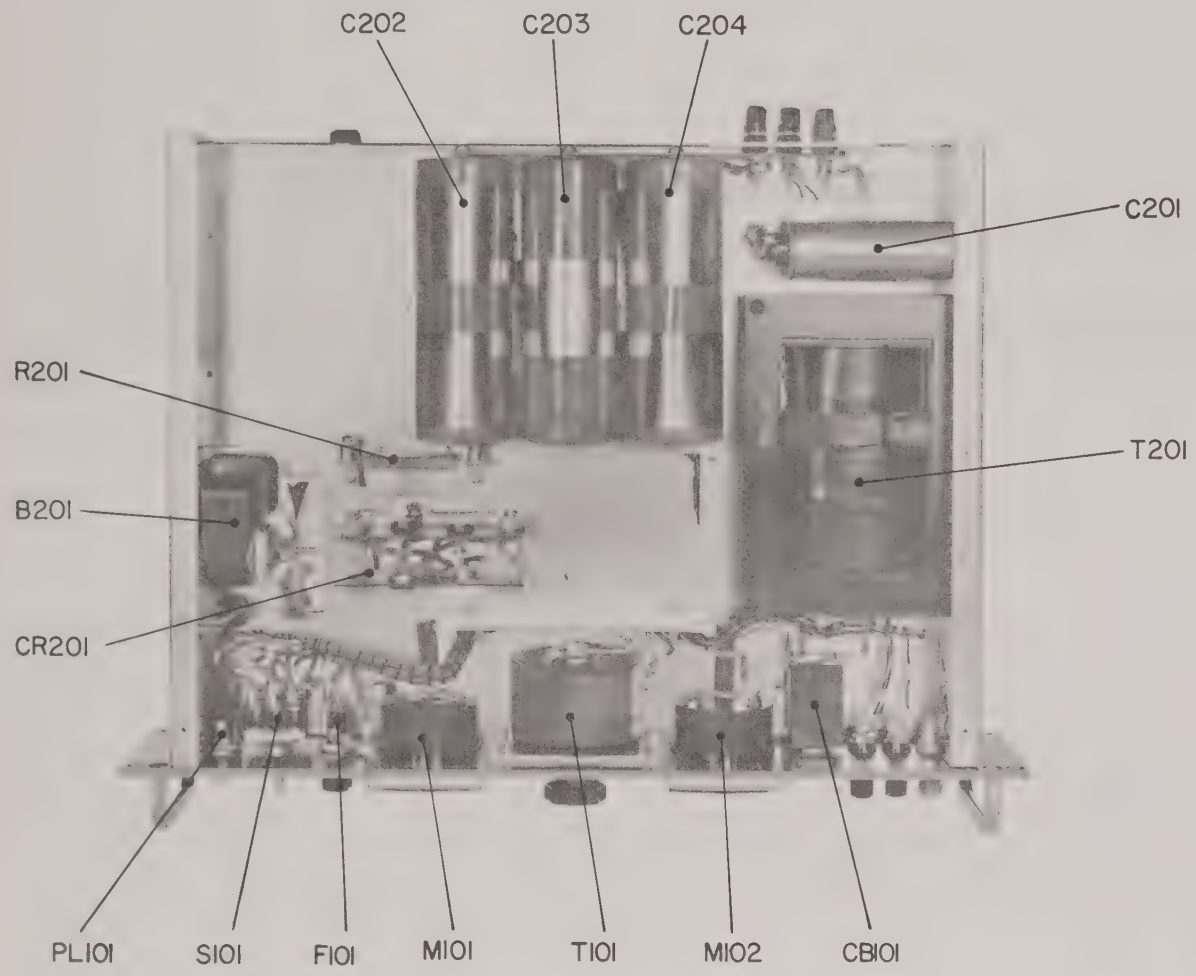
REPLACEMENT PARTS LIST

MODEL PR80-2.5, (M)
DWG NO BSK00254

CODE: 9-1461

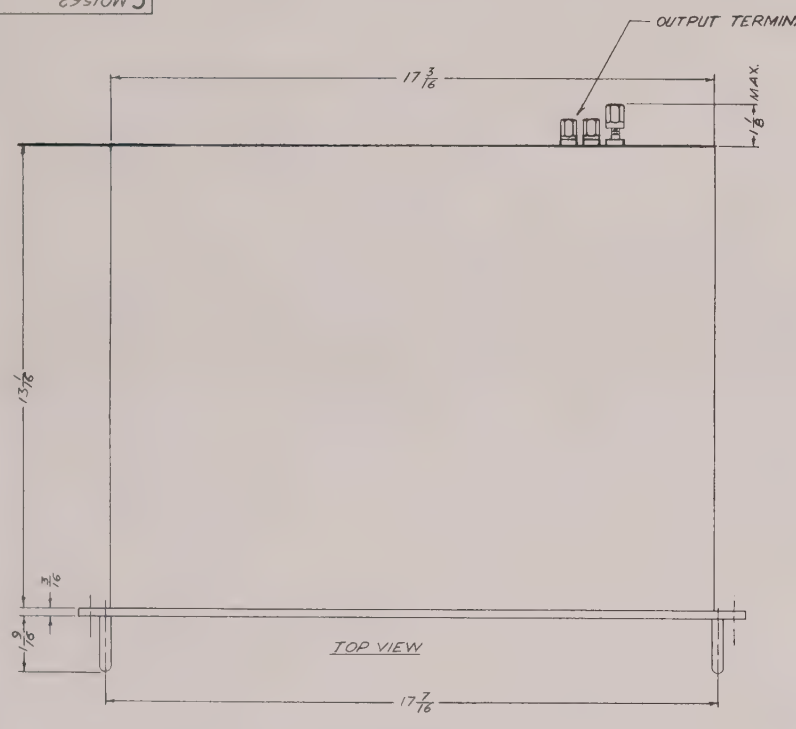
SCHEMATIC NO	QTY	DESCRIPTION	MFRS NAME AND PART NO	KEPCO PART NO
B201	1	Motor	Barber-Colman KYAF764-1	148-0006
		Capacitors:		
C201	1	Paper, Can-type 2 µf, 660 v ac	General Electric 49F2322	117-0169
C202-204	3	Electrolytic, Can-type 3,350 µf, 110 v	Sangamo DCM	117-0272
CB101	1	Switch, Circuit Breaker 4.5 a	ETA 45-704.5-P	127-0146
CR201	1	Rectifier, Silicon, Stack	Kepco 124-0126	124-0126
F101	1	Fuse, Instantaneous 5 a, 125 v	Bussmann MDX-5	141-0042
M101	1	Meter(Model PR80-2.5M only) 0-80 v, 2-1/2"	General Electric 8DW91V231AS2	135-0189
M102	1	Meter(Model PR80-2.5M only) 0-2.5 a, 2-1/2"	General Electric 8DW91A	135-0202
PL101	1	Pilot Light Neon	General Electric NE-51	153-0024
R201	1	Resistor, Fixed, Power Strip 300 ohm, 5% 40w	Hardwick Hindle 2BR-37-300 ohm 5%	115-1078
S101	1	Switch 3PDT	Cutler-Hammer 7612-K2	127-0145
T101	1	Transformer, Variable	Superior 10B-40	175-0416
T201	1	Transformer, Flux-O-Tran	Kepco Mag 100-1248	100-1248

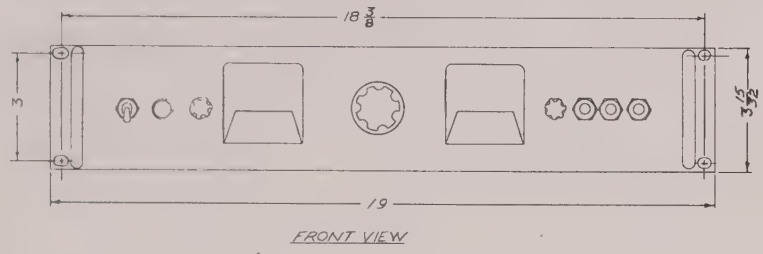


KEPCO INC.	
FLUSHING NEW YORK	
ITEM POWER UNIT	DES. 10-27-61
	APPD
MODEL PR 80-2.5	DFTM R.HOLZMACHER
DWG. No BM01735	CHKD M. R.

C M01562

REVISIONS	DRAWN	CHKD.	APPD.	DATE





NOTES:
USED ON MODELS

PR-15-10
PR-310-06
PR-155-1
PR-380-2.5
PR-38-5

TOLERANCE UNLESS OTHERWISE SPECIFIED FRACTIONS ± 1/64 DECIMALS ± .005 ANGLES ± 1/2°

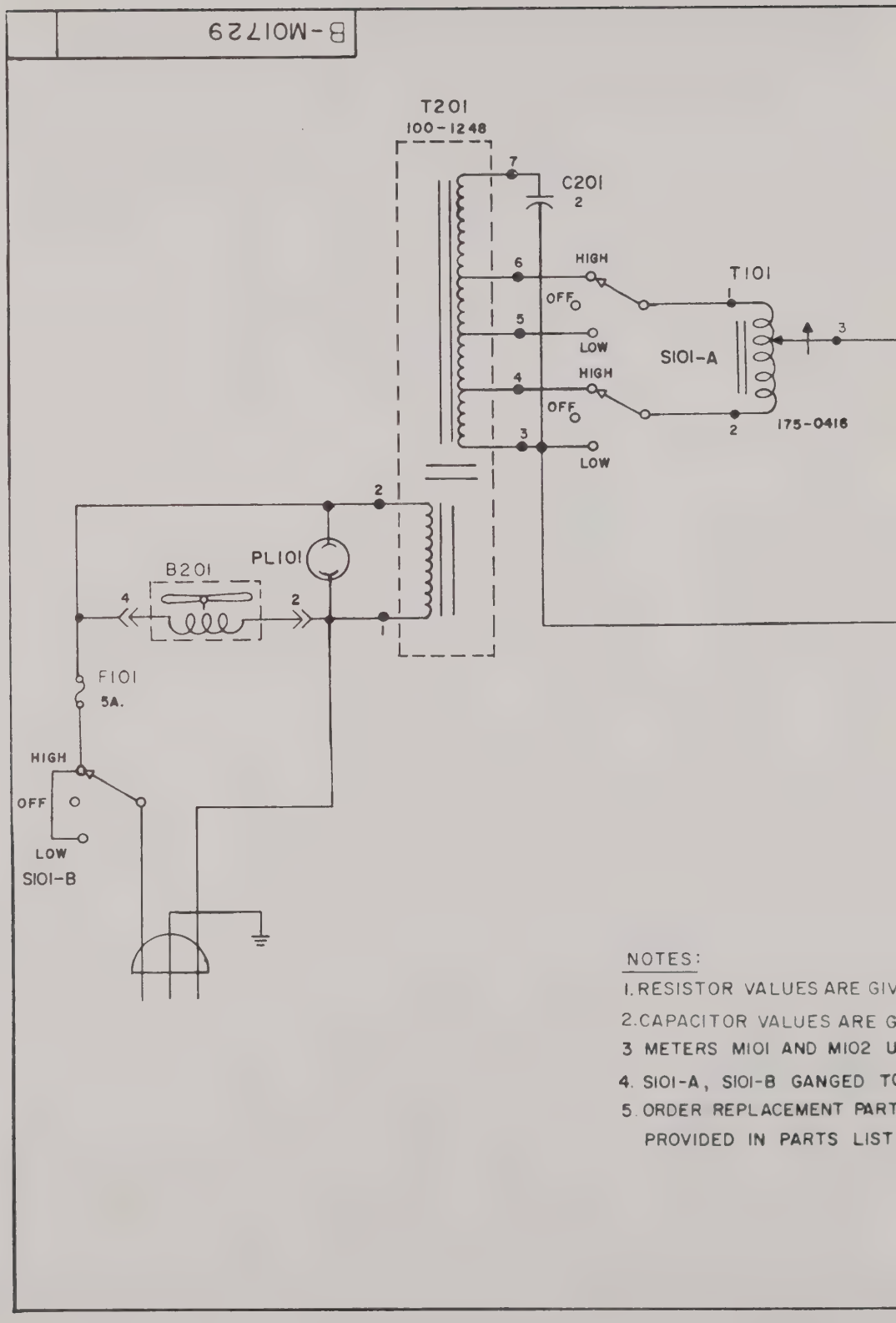
KEPCO INC.
FLUSHING, N.Y.

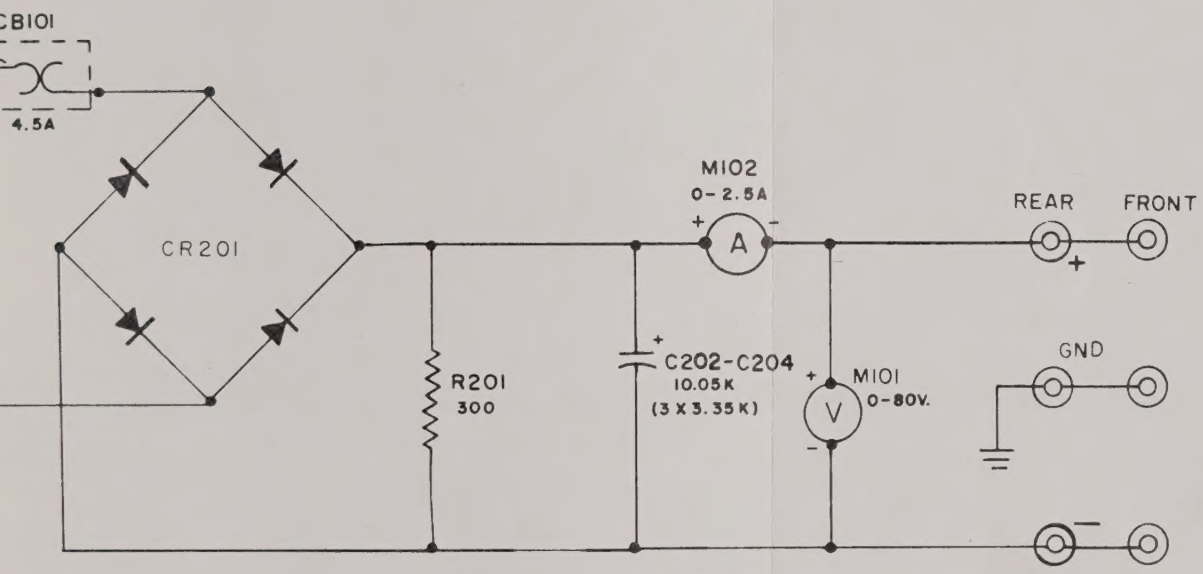
TITLE: OUTLINE DRAWING

DRAWN	CHECKED	APPROVED	DATE
R A	TRef	G Bynick	8-29-61

MODEL NO. 3½ PR-SERIES | PART NO. | SCALE HALF

DWG. NO. C M01562


B-M01729
T201
100-1248
7
C201
2
6
HIGH
OFF
5
LOW
4
HIGH
OFF
3
LOW
T101
1
S101-A
3
2
175-0416
2
PL101
B201
4
2
F101
5A.
HIGH
OFF
LOW
S101-B
NOTES:
1. RESISTOR VALUES ARE GIV
2. CAPACITOR VALUES ARE G
3 METERS M101 AND M102 U
4. S101-A, S101-B GANGED TO
5. ORDER REPLACEMENT PART
PROVIDED IN PARTS LIST



N OHMS

IN MICROFARDS

IN MODEL PR 80-2.5M ONLY.

HER.

KEPCO PART NUMBER

TION.

KEPCO LABORATORIES	
FLUSHING NEW YORK	
ITEM SCHEMATIC POWER UNIT	DES
	APPD
MODEL PR 80-2.5	DFTM M.R. 10-27-61
DWG NO B-M01729	CHKD

kepco inc.®

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146-0045 - 1/62 -12M